

49321-120.ST25.txt
SEQUENCE LISTING

<110> Oregon Health & Science University
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Nelson, Jay
Fruh, Klaus
King, Jeff
Jelinek, Laura
Hirsch, Alec
DeFilippis, Victor

<120> METHODS OF TREATMENT AND DIAGNOSIS USING MODULATORS OF
VIRUS-INDUCED CELLULAR GENE SEQUENCES

<130> 49321-120

<140> US

<141> 2004-04-15

<150> US 60/486,694

<151> 2003-07-11

<150> US 60/533,103

<151> 2003-12-29

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<170> PatentIn version 3.2

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Asn Ala His Ala Gly His Ser Gly Leu Leu His Gly Pro Ala Ser Arg	
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Ser His Arg Ala Arg Pro Arg Pro Ala Arg Glu Ala His Arg Pro His	
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Gln Glu Lys Lys Ile Lys Lys Glu Asp Ser Ser Ser Gly Leu Met Asn
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Ser Ala Thr Ile Leu Gly Ala Trp Phe Leu Ser Phe Leu Trp Val Ile	
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Glu Asp Lys Cys Glu Thr Asp Phe Tyr Asp Val Thr Trp Phe Lys Val
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Tyr Val Ser Gly Leu His Met Asn Arg Glu Arg Lys Ala Ala Lys Gln
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Ile Phe Phe Met Val Ile Ala Phe Cys Lys Asn Cys Cys Asn Glu His
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Leu His Met Phe Thr Ile Trp Leu Gly Tyr Ile Asn Ser Thr Leu Asn
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49321-120.ST25.txt

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Met Glu Asn
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gga tac acc tat gaa gat tat aag aac act gca gaa tgg ctt ctg tct 166
Gly Tyr Thr Tyr Glu Asp Tyr Lys Asn Thr Ala Glu Trp Leu Leu Ser
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cat act aag cac cga cct caa gtt gca ata atc tgt ggt tct gga tta 214
His Thr Lys His Arg Pro Gln Val Ala Ile Ile Cys Gly Ser Gly Leu
20 25 30 35

gga ggt ctg act gat aaa tta act cag gcc cag atc ttt gac tac agt 262
Gly Gly Leu Thr Asp Lys Leu Thr Gln Ala Gln Ile Phe Asp Tyr Ser
40 45 50

gaa atc ccc aac ttt cct cga agt aca gtg cca ggt cat gct ggc cga 310
Glu Ile Pro Asn Phe Pro Arg Ser Thr Val Pro Gly His Ala Gly Arg
55 60 65

ctg gtg ttt ggg ttc ctg aat ggc agg gcc tgt gtg atg atg cag ggc 358
Leu Val Phe Gly Phe Leu Asn Gly Arg Ala Cys Val Met Met Gln Gly
70 75 80

agg ttc cac atg tat gaa ggg tac cca ctc tgg aag gtg aca ttc cca 406
Arg Phe His Met Tyr Glu Gly Tyr Pro Leu Trp Lys Val Thr Phe Pro
85 90 95

gtg agg gtt ttc cac ctt ctg ggt gtg gac acc ctg gta gtc acc aat 454
Val Arg Val Phe His Leu Leu Gly Val Asp Thr Leu Val Val Thr Asn
100 105 110 115

gca gca gga ggg ctg aac ccc aag ttt gag gtt gga gat atc atg ctg 502
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120 125 130

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Ile Arg Asp His Ile Asn Leu Pro Gly Phe Ser Gly Gln Asn Pro Leu
135 140 145

aga ggg ccc aat gat gaa agg ttt gga gat cgt ttc cct gcc atg tct 598
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150 155 160

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49321-120.ST25.txt

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Gln Met Gly Glu Gln Arg Glu Leu Gln Glu Gly Thr Tyr Val Met Val
180 185 190 195

gca ggc ccc agc ttt gag act gtg gca gaa tgt cgt gtg ctg cag aag 742
Ala Gly Pro Ser Phe Glu Thr Val Ala Glu Cys Arg Val Leu Gln Lys
200 205 210

ctg gga gca gac gct gtt ggc atg agt aca gta cca gaa gtt atc gtt 790
Leu Gly Ala Asp Ala Val Gly Met Ser Thr Val Pro Glu Val Ile Val
215 220 225

gca cgg cac tgt gga ctt cga gtc ttt ggc ttc tca ctc atc act aac 838
Ala Arg His Cys Gly Leu Arg Val Phe Gly Phe Ser Leu Ile Thr Asn
230 235 240

aag gtc atc atg gat tat gaa agc ctg gag aag gcc aac cat gaa gaa 886
Lys Val Ile Met Asp Tyr Glu Ser Leu Glu Lys Ala Asn His Glu Glu
245 250 255

gtc tta gca gct ggc aaa caa gct gca cag aaa ttg gaa cag ttt gtc 934
Val Leu Ala Ala Gly Lys Gln Ala Ala Gln Lys Leu Glu Gln Phe Val
260 265 270 275

tcc att ctt atg gcc agc att cca ctc cct gac aaa gcc agt tga 979
Ser Ile Leu Met Ala Ser Ile Pro Leu Pro Asp Lys Ala Ser
280 285

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20 25 30

49321-120.ST25.txt

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Asp Tyr Ser Glu Ile Pro Asn Phe Pro Arg Ser Thr Val Pro Gly His
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Ala Gly Arg Leu Val Phe Gly Phe Leu Asn Gly Arg Ala Cys Val Met
 65 70 75 80

Met Gln Gly Arg Phe His Met Tyr Glu Gly Tyr Pro Leu Trp Lys Val
 85 90 95

Thr Phe Pro Val Arg Val Phe His Leu Leu Gly Val Asp Thr Leu Val
 100 105 110

Val Thr Asn Ala Ala Gly Gly Leu Asn Pro Lys Phe Glu Val Gly Asp
 115 120 125

Ile Met Leu Ile Arg Asp His Ile Asn Leu Pro Gly Phe Ser Gly Gln
 130 135 140

Asn Pro Leu Arg Gly Pro Asn Asp Glu Arg Phe Gly Asp Arg Phe Pro
 145 150 155 160

Ala Met Ser Asp Ala Tyr Asp Arg Thr Met Arg Gln Arg Ala Leu Ser
 165 170 175

Thr Trp Lys Gln Met Gly Glu Gln Arg Glu Leu Gln Glu Gly Thr Tyr
 180 185 190

Val Met Val Ala Gly Pro Ser Phe Glu Thr Val Ala Glu Cys Arg Val
 195 200 205

Leu Gln Lys Leu Gly Ala Asp Ala Val Gly Met Ser Thr Val Pro Glu
 210 215 220

Val Ile Val Ala Arg His Cys Gly Leu Arg Val Phe Gly Phe Ser Leu
 225 230 235 240

Ile Thr Asn Lys Val Ile Met Asp Tyr Glu Ser Leu Glu Lys Ala Asn
 245 250 255

His Glu Glu Val Leu Ala Ala Gly Lys Gln Ala Ala Gln Lys Leu Glu
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Gln Phe Val Ser Ile Leu Met Ala Ser Ile Pro Leu Pro Asp Lys Ala

49321-120.ST25.txt

275

280

285

Ser

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att aaa tac aga cct gaa aat act cca gag cct gtc agt aca agt gtg 97
 Ile Lys Tyr Arg Pro Glu Asn Thr Pro Glu Pro Val Ser Thr Ser Val
 15 20 25

agc cat tat gga gca gaa ccc act aca gtg tca cca tgt ccg tca tct 145
 Ser His Tyr Gly Ala Glu Pro Thr Thr Val Ser Pro Cys Pro Ser Ser
 30 35 40 45

tca gca aag gga aca gca gtt aat ttc agc agt ctt tcc atg aca cca 193
 Ser Ala Lys Gly Thr Ala Val Asn Phe Ser Ser Leu Ser Met Thr Pro
 50 55 60

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 Phe Gly Gly Ser Ser Gly Val Thr Pro Phe Gly Gly Ala Ser Ser Ser
 65 70 75

ttt tca gtg gtg cca agt tca tat cct gct ggt tta aca ggt ggt gtt 289
 Phe Ser Val Val Pro Ser Ser Tyr Pro Ala Gly Leu Thr Gly Gly Val
 80 85 90

act ata ttt gtg gcc tta tat gat tat gaa gct aga act aca gaa gac 337
 Thr Ile Phe Val Ala Leu Tyr Asp Tyr Glu Ala Arg Thr Thr Glu Asp
 95 100 105

ctt tca ttt aag aag ggt gaa aga ttt caa ata att aac aat acg gaa 385
 Leu Ser Phe Lys Lys Gly Glu Arg Phe Gln Ile Ile Asn Asn Thr Glu
 110 115 120 125

gga gat tgg tgg gaa gca aga tca atc gct aca gga aag aat ggt tat 433
 Gly Asp Trp Trp Glu Ala Arg Ser Ile Ala Thr Gly Lys Asn Gly Tyr
 130 135 140

atc ccg agc aat tat gta gcg cct gca gat tcc att cag gca gaa gaa 481
 Ile Pro Ser Asn Tyr Val Ala Pro Ala Asp Ser Ile Gln Ala Glu Glu
 145 150 155

tgg tat ttt ggc aaa atg ggg aga aaa gat gct gaa aga tta ctt ttg 529
 Trp Tyr Phe Gly Lys Met Gly Arg Lys Asp Ala Glu Arg Leu Leu Leu
 160 165 170

aat cct gga aat caa cga ggt att ttc tta gta aga gag agt gaa aca 577

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Thr	Lys	Gly	Ala	Tyr	Ser	Leu	Ser	Ile	Arg	Asp	Trp	Asp	Glu	Ile	Arg	
190					195					200					205	
ggt	gac	aat	gtg	aaa	cac	tac	aaa	att	agg	aaa	ctt	gac	aat	ggt	gga	673
Gly	Asp	Asn	Val	Lys	His	Tyr	Lys	Ile	Arg	Lys	Leu	Asp	Asn	Gly	Gly	
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tac	tat	atc	aca	acc	aga	gca	caa	ttt	gat	act	ctg	cag	aaa	ttg	gtg	721
Tyr	Tyr	Ile	Thr	Thr	Arg	Ala	Gln	Phe	Asp	Thr	Leu	Gln	Lys	Leu	Val	
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aaa	cac	tac	aca	gaa	cat	gct	gat	ggt	tta	tgc	cac	aag	ttg	aca	act	769
Lys	His	Tyr	Thr	Glu	His	Ala	Asp	Gly	Leu	Cys	His	Lys	Leu	Thr	Thr	
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Val	Cys	Pro	Thr	Val	Lys	Pro	Gln	Thr	Gln	Gly	Leu	Ala	Lys	Asp	Ala	
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Trp	Glu	Ile	Pro	Arg	Glu	Ser	Leu	Arg	Leu	Glu	Val	Lys	Leu	Gly	Gln	
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Gly	Cys	Phe	Gly	Glu	Val	Trp	Met	Gly	Thr	Trp	Asn	Gly	Thr	Thr	Lys	
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gta	gca	atc	aaa	aca	cta	aaa	cca	ggt	aca	atg	atg	cca	gaa	gct	ttc	961
Val	Ala	Ile	Lys	Thr	Leu	Lys	Pro	Gly	Thr	Met	Met	Pro	Glu	Ala	Phe	
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ctt	caa	gaa	gct	cag	ata	atg	aaa	aaa	tta	aga	cat	gat	aaa	ctt	gtt	1009
Leu	Gln	Glu	Ala	Gln	Ile	Met	Lys	Lys	Leu	Arg	His	Asp	Lys	Leu	Val	
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cca	cta	tat	gct	gtt	gtt	tct	gaa	gaa	cca	att	tac	att	gtc	act	gaa	1057
Pro	Leu	Tyr	Ala	Val	Val	Ser	Glu	Glu	Pro	Ile	Tyr	Ile	Val	Thr	Glu	
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Phe	Met	Ser	Lys	Gly	Ser	Leu	Leu	Asp	Phe	Leu	Lys	Glu	Gly	Asp	Gly	
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Lys	Tyr	Leu	Lys	Leu	Pro	Gln	Leu	Val	Asp	Met	Ala	Ala	Gln	Ile	Ala	
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gat	ggt	atg	gca	tat												

49321-120.ST25.txt

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Gln Gly Ala Lys Phe Pro Ile Lys Trp Thr Ala Pro Glu Ala Ala Leu	
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tat ggt cgg ttt aca ata aag tct gat gtc tgg tca ttt gga att ctg	1393
Tyr Gly Arg Phe Thr Ile Lys Ser Asp Val Trp Ser Phe Gly Ile Leu	
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caa aca gaa cta gta aca aag ggc cga gtg cca tat cca ggt atg gtg	1441
Gln Thr Glu Leu Val Thr Lys Gly Arg Val Pro Tyr Pro Gly Met Val	
465 470 475	
aac cgt gaa gta cta gaa caa gtg gag cga gga tac agg atg ccg tgc	1489
Asn Arg Glu Val Leu Glu Gln Val Glu Arg Gly Tyr Arg Met Pro Cys	
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cct cag ggc tgt cca gaa tcc ctc cat gaa ttg atg aat ctg tgt tgg	1537
Pro Gln Gly Cys Pro Glu Ser Leu His Glu Leu Met Asn Leu Cys Trp	
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Lys Lys Asp Pro Asp Glu Arg Pro Thr Phe Glu Tyr Ile Gln Ser Phe	
510 515 520 525	
ttg gaa gac tac ttc act gct aca gag cca cag tac cag cca gga gaa	1633
Leu Glu Asp Tyr Phe Thr Ala Thr Glu Pro Gln Tyr Gln Pro Gly Glu	
530 535 540	
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Asn Leu	
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49321-120.ST25.txt

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49321-120.ST25.txt

<213> Homo sapiens

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 20 25 30

Gly Ala Glu Pro Thr Thr Val Ser Pro Cys Pro Ser Ser Ser Ala Lys
 35 40 45

Gly Thr Ala Val Asn Phe Ser Ser Leu Ser Met Thr Pro Phe Gly Gly
 50 55 60

Ser Ser Gly Val Thr Pro Phe Gly Gly Ala Ser Ser Ser Phe Ser Val
 65 70 75 80

Val Pro Ser Ser Tyr Pro Ala Gly Leu Thr Gly Gly Val Thr Ile Phe
 85 90 95

Val Ala Leu Tyr Asp Tyr Glu Ala Arg Thr Thr Glu Asp Leu Ser Phe
 100 105 110

Lys Lys Gly Glu Arg Phe Gln Ile Ile Asn Asn Thr Glu Gly Asp Trp
 115 120 125

Trp Glu Ala Arg Ser Ile Ala Thr Gly Lys Asn Gly Tyr Ile Pro Ser
 130 135 140

Asn Tyr Val Ala Pro Ala Asp Ser Ile Gln Ala Glu Glu Trp Tyr Phe
 145 150 155 160

Gly Lys Met Gly Arg Lys Asp Ala Glu Arg Leu Leu Leu Asn Pro Gly
 165 170 175

Asn Gln Arg Gly Ile Phe Leu Val Arg Glu Ser Glu Thr Thr Lys Gly
 180 185 190

Ala Tyr Ser Leu Ser Ile Arg Asp Trp Asp Glu Ile Arg Gly Asp Asn
 195 200 205

Val Lys His Tyr Lys Ile Arg Lys Leu Asp Asn Gly Gly Tyr Tyr Ile
 210 215 220

Thr Thr Arg Ala Gln Phe Asp Thr Leu Gln Lys Leu Val Lys His Tyr
 225 230 235 240

49321-120.ST25.txt

Thr Glu His Ala Asp Gly Leu Cys His Lys Leu Thr Thr Val Cys Pro
 245 250 255

Thr Val Lys Pro Gln Thr Gln Gly Leu Ala Lys Asp Ala Trp Glu Ile
 260 265 270

Pro Arg Glu Ser Leu Arg Leu Glu Val Lys Leu Gly Gln Gly Cys Phe
 275 280 285

Gly Glu Val Trp Met Gly Thr Trp Asn Gly Thr Thr Lys Val Ala Ile
 290 295 300

Lys Thr Leu Lys Pro Gly Thr Met Met Pro Glu Ala Phe Leu Gln Glu
 305 310 315 320

Ala Gln Ile Met Lys Lys Leu Arg His Asp Lys Leu Val Pro Leu Tyr
 325 330 335

Ala Val Val Ser Glu Glu Pro Ile Tyr Ile Val Thr Glu Phe Met Ser
 340 345 350

Lys Gly Ser Leu Leu Asp Phe Leu Lys Glu Gly Asp Gly Lys Tyr Leu
 355 360 365

Lys Leu Pro Gln Leu Val Asp Met Ala Ala Gln Ile Ala Asp Gly Met
 370 375 380

Ala Tyr Ile Glu Arg Met Asn Tyr Ile His Arg Asp Leu Arg Ala Ala
 385 390 395 400

Asn Ile Leu Val Gly Glu Asn Leu Val Cys Lys Ile Ala Asp Phe Gly
 405 410 415

Leu Ala Arg Leu Ile Glu Asp Asn Glu Tyr Thr Ala Arg Gln Gly Ala
 420 425 430

Lys Phe Pro Ile Lys Trp Thr Ala Pro Glu Ala Ala Leu Tyr Gly Arg
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Phe Thr Ile Lys Ser Asp Val Trp Ser Phe Gly Ile Leu Gln Thr Glu
 450 455 460

Leu Val Thr Lys Gly Arg Val Pro Tyr Pro Gly Met Val Asn Arg Glu
 465 470 475 480

Val Leu Glu Gln Val Glu Arg Gly Tyr Arg Met Pro Cys Pro Gln Gly
 485 490 495

49321-120.ST25.txt

Cys Pro Glu Ser Leu His Glu Leu Met Asn Leu Cys Trp Lys Lys Asp
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Pro Asp Glu Arg Pro Thr Phe Glu Tyr Ile Gln Ser Phe Leu Glu Asp
 515 520 525

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